1. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $ax^3 + bx^2 + cx + d$.

$$\frac{7}{4}, \frac{-7}{5}, \text{ and } \frac{5}{2}$$

A. $a \in [39, 49], b \in [114, 119], c \in [-65, -62],$ and $d \in [-247, -238]$

B. $a \in [39, 49], b \in [-87, -83], c \in [-137, -129],$ and $d \in [241, 248]$

C. $a \in [39, 49], b \in [-115, -112], c \in [-65, -62],$ and $d \in [241, 248]$

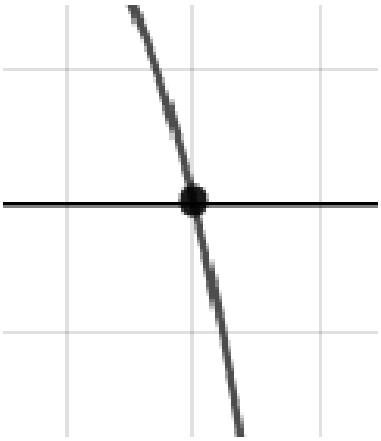
D. $a \in [39, 49], b \in [-115, -112], c \in [-65, -62],$ and $d \in [-247, -238]$

E. $a \in [39, 49], b \in [25, 29], c \in [-220, -214],$ and $d \in [-247, -238]$

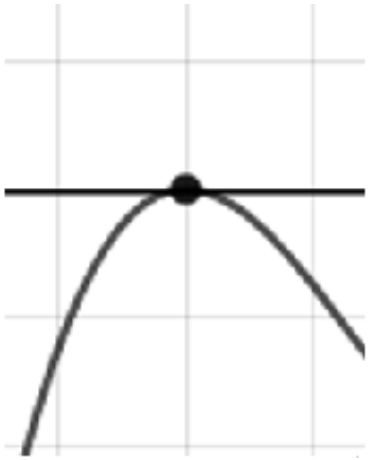
---

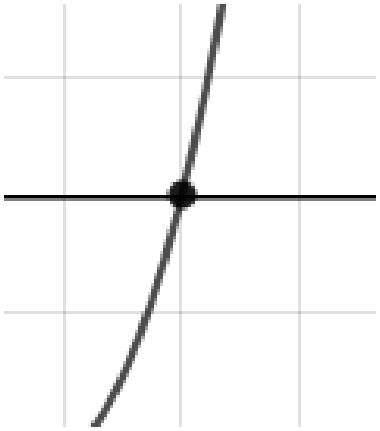
2. Describe the zero behavior of the zero $x = -8$ of the polynomial below.

$$f(x) = 3(x + 7)^{11}(x - 7)^9(x - 8)^8(x + 8)^5$$

A. 

C. 

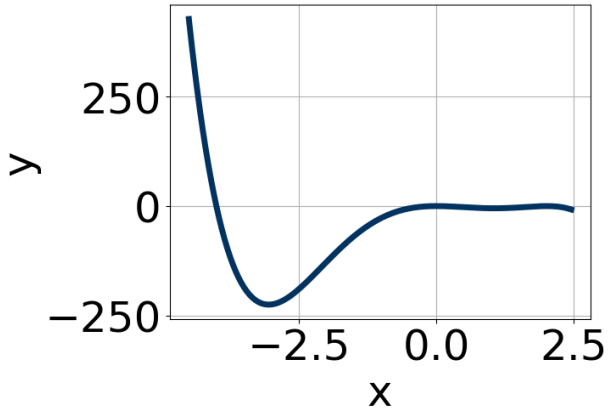
B. 

D. 

E. None of the above.

---

3. Which of the following equations *could* be of the graph presented below?



A. $-20x^4(x-2)^8(x+4)^{11}$

B. $-4x^8(x-2)^{11}(x+4)^7$

C. $6x^4(x-2)^6(x+4)^8$

D. $-7x^8(x-2)^5(x+4)^8$

E. $14x^6(x-2)^{10}(x+4)^7$

---

4. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $x^3 + bx^2 + cx + d$.

$$-5 - 3i \text{ and } -2$$

A. $b \in [-1, 10], c \in [6.99, 8.99],$ and $d \in [7, 12]$

B. $b \in [-16, -10], c \in [53.47, 55.02],$ and $d \in [-72, -63]$

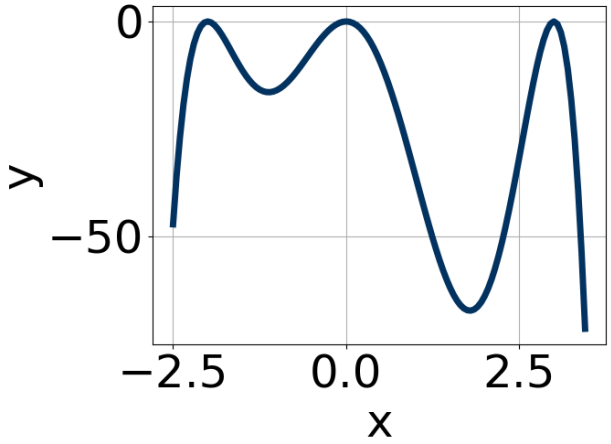
C. $b \in [-1, 10], c \in [4.6, 5.04],$ and $d \in [1, 7]$

D. $b \in [11, 13], c \in [53.47, 55.02],$ and $d \in [68, 69]$

E. None of the above.

---

5. Which of the following equations *could* be of the graph presented below?



A. $-13x^{10}(x-3)^4(x+2)^{11}$

B. $11x^4(x-3)^4(x+2)^4$

C. $-17x^4(x-3)^{10}(x+2)^4$

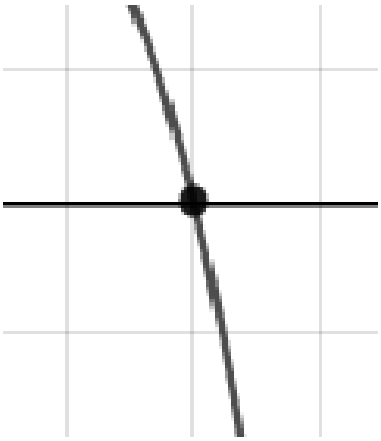
D. $-8x^8(x-3)^7(x+2)^7$

E. $12x^{10}(x-3)^{10}(x+2)^{11}$

---

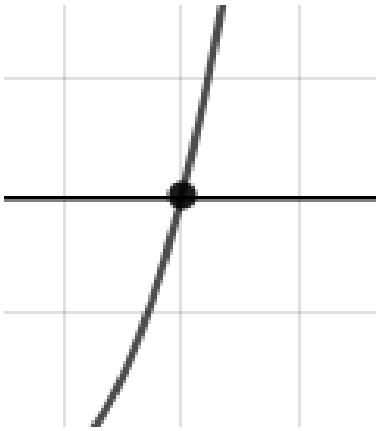
6. Describe the zero behavior of the zero $x = 3$ of the polynomial below.

$$f(x) = 5(x-3)^5(x+3)^{10}(x+9)^6(x-9)^{10}$$

A. 

B. 

C. 

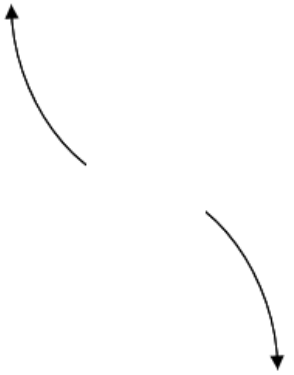
D. 

E. None of the above.

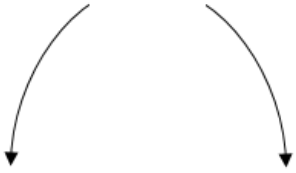
---

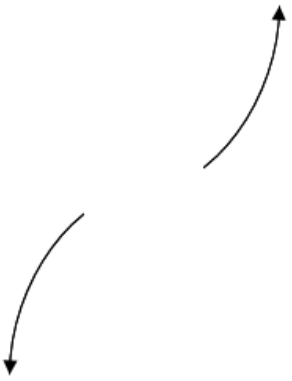
7. Describe the end behavior of the polynomial below.

$$f(x) = 2(x+7)^3(x-7)^8(x-2)^2(x+2)^4$$

A. 

C. 

B. 

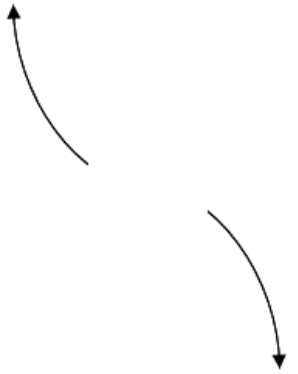
D. 

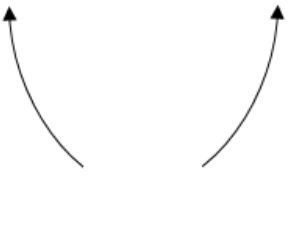
E. None of the above.

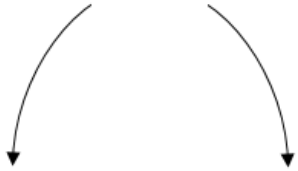
---

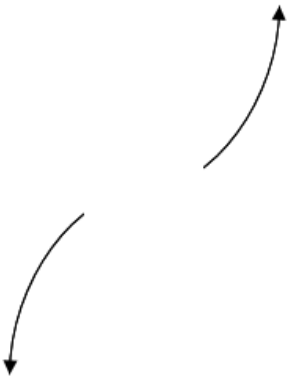
8. Describe the end behavior of the polynomial below.

$$f(x) = -8(x-9)^4(x+9)^5(x+2)^4(x-2)^5$$

A.


C.


B.


D.


E. None of the above.

---

9. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $ax^3 + bx^2 + cx + d$.

$$\frac{-1}{4}, \frac{-1}{5}, \text{ and } \frac{4}{5}$$

A. $a \in [97, 105], b \in [-39, -33], c \in [-38, -27],$ and $d \in [2, 6]$

B. $a \in [97, 105], b \in [-125, -121], c \in [36, 47],$ and $d \in [-7, -2]$

C. $a \in [97, 105], b \in [-87, -79], c \in [-1, 8],$ and $d \in [2, 6]$

D. $a \in [97, 105], b \in [-39, -33], c \in [-38, -27],$ and $d \in [-7, -2]$

E. $a \in [97, 105], b \in [32, 40], c \in [-38, -27],$ and $d \in [2, 6]$

---

10. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $x^3 + bx^2 + cx + d$.

$$3 - 3i \text{ and } 4$$

A. $b \in [-1, 7], c \in [-6, 0],$ and $d \in [-14, -11]$

B. $b \in [-1, 7], c \in [-8, -2],$ and $d \in [10, 13]$

C. $b \in [5, 20], c \in [34, 44],$ and $d \in [72, 78]$

D. $b \in [-10, -5], c \in [34, 44],$ and $d \in [-77, -69]$

E. None of the above.